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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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08/770,792

12/19/1996

JUN KOYAMA

07977/105001

3931

20985

7590

06/05/2002

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EXAMINER

NGO, HUYEN LE

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 06/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/770,792

Applicant(s)

KOYAMA ET AL.

Examiner

Julie-Huyen L. Ngo

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MC

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,4,6,10,13,14,17,21-25,27,30-32,35-37,40-42,44,51-56,61-64 and 69-72 is/are rejected.
- 7) ☒ Claim(s) 2,10,27,32,37 and 51 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 April 1997 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- ☐ Interview Summary (PTO-413) Paper No(s) _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other:

Continuation of Disposition of Claims: Claims pending in the application are 2,4,6,10,13,14,17,21-25,27,30-32,35-37,40-42,44,51-56,61-64 and 69-72.

DETAILED ACTION

Response to Amendment

The amendment filed on February 22, 2002 requests the amendment of claims 65-68 that have been canceled in the amendment filed on August 8, 2001 (paper no. 30). The amendment filed February 22, 2002 has been entered except as to claims 65-68 since they are no longer pending in this application.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the direction of array of the pixel TFTs being parallel or vertical to the side edge of the first substrate or the cut side edges as recited in claims 2, 10, 27, 32 and 37; and the driver TFTs/driver circuit along with the control circuit recited in claims 17 and 21-25 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter of claims 17 and 21-25 regarding the control circuit comprising a semiconductor chip. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o).

Correction is required.

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Claim Objections

Claims 2, 10, 27, 32, 37, 51 are objected to because the direction of array of said TFTs and how it is formed in order to be parallel or vertical to a side edge of the first substrate or cut side edges of the substrates is not clear. Also, it is unclear which side edge Applicant considers to be the side edge that is parallel or vertical to "a direction of array of said TFTs" since there is more than one side edge of the first substrate that is bonded to the side edges of the counter substrate by the nonconductive or weakly conductive material 906, as shown in the drawing, e.g. figure 9. *SK*

Claims 17 and 21-25 are incomplete for reciting only one side edge of the first substrates that is bonded to the side edge of the counter substrate since there is more than one side edge that bonds the two substrates together by the nonconductive or weakly conductive material 906, as shown in the drawing (e.g. fig. 9). *'g'*

In claims 17 and 21-25, the term used to describe the "drive TFTs," in line 5, would more properly be preferred to as a driver circuit formed of TFTs or TFT driver circuit. ✓

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 61-64 and 69-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted Prior Art (APA) in view of Inoue et al (U.S. 5854664), McClelland et al (US4695490) and Sasaki et al (US 4494825).

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APA discloses (p.2, lines 14-23, Figs 2-6) a conventional active matrix liquid crystal display comprising all the elements recited in claims 61-64 and 69-72 exclusive of:

_ a non-conductive or weakly conductive material applied to the side edge of the TFT substrate (505), the side edge of the counter substrate (501) and the part of the bus line (504),

Wherein said non-conductive or weakly conductive material is provided on an outer side of a sealing material (502).

Although the APA device does not explicitly mentioned about a channel formation region provided in a semiconductor film provided in the first substrate, and a gate electrode with a gate insulating film there between, which has a thickness of 500 to 2000 Å, it is well known in the art for a TFT to have such a layer structure with a gate insulating film thickness of 500-2000 Å. Therefore, the APA device would obviously comprise all of these features.

Further more, it is well known and conventional in the art to apply a non-conductive or weakly conductive material to cut side edges of glass substrates and cut side edge of a bus line for sealing the cut side edges of a liquid crystal display device (LCD), as taught by Inoue et al (col. 9, lines 25-31), McClelland et al (col. 1, line 9-col. 2, line 26), and Sasaki et al. (Figure 2, col. 2, lines 35-48).

Therefore, it would have been obvious to apply a non-conductive or weakly conductive material to the cut side edges of glass substrates and bus line in the APA

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device for completely sealing said side edges of the LCD, taught by Inoue et al, McClelland et al, and Sasaki et al.

Thus claims 61-64 and 69-72 would have been obvious over Applicant's admitted Prior Art (APA) in view of Inoue/ McClelland/Sasaki as applied above.

Claims 2, 4, 6, 10, 13, 14, 17, 21-25, 27, 30-32, 35-37, 40-42, 44 and 51-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted Prior Art (APA) in view of Inoue/ McClelland/Sasaki, as applied above to claims 61-64 and 69-72, and further in view of JP405113555A and JP404192446A.

The modified APA device as applied above comprising all the elements recited in the set forth above claims exclusive of:

A control circuit forms over a substrate and comprises of a semiconductor chip, which provides under and in contact with the sealing material, for controlling the driver circuit.

It is well known and conventional in the art to have a control circuit, which is a semiconductor chip, formed on/over a substrate of a LDC panel for improving workability assembling of a liquid crystal panel, as taught and evidenced by JP405113555A. This reference teaches forming a control circuit/ semiconductor chip 13 for driving liquid crystal around a liquid crystal display part 12 on/over the substrate 11.

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JP404192446A teaches simultaneously attaining high heat conductivity with low stress by sealing a semiconductor chip with thermosetting resin, which is the mixture of alumina and fused silica.

Therefore, it would have been obvious for one of ordinary skill in the art to form a control circuit, which is a semiconductor chip, for driving the driver TFTs on/over the TFT substrate of LDC panel in the APA device, as taught by JP405113555A. Also, it would have been obvious for one of ordinary skill in the art to seal said semiconductor chip in the sealing material of the APA device for attaining high heat conductivity with low stress, as taught by JP404192446A.

Thus claims 2, 4, 6, 10, 13, 14, 17, 21-25, 27, 30-32, 35-37, 40-42, 44 and 51-56 would have been obvious over Applicant's admitted Prior Art (APA) in view of Inoue/McClelland/Sasaki, and further in view of JP405113555A and JP404192446A.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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Claims 2, 4, 6, 10, 13, 14, 17, 21-25, 27, 30-32, 35-37, 40-42, 44, 51-56, 61-64 and 69-72 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the claims of Koyama et al (U.S. 6246454) in view of Inoue et al (U.S. 5854664), McClelland et al (US4695490) and Sasaki et al (US 4494825), as set forth below:

Since the method claims are just the steps of forming the elements of the device, the method claims would have been obvious in view of the device. Therefore, the method claims are treated below along with the corresponding device claims.

Claims 17-19 and 25 of Koyama comprise all the limitations of claims 2, 4, 6, 10, 13, 14, 17, 21-25, 27, 30-32, 35-37, 40-42, 44, 51-56, 61-64 and 69-72 exclusive of:

_ a non-conductive or weakly conductive material applied to the side edges of the TFT substrate, counter substrate and a part of the bus line, wherein said non-conductive or weakly conductive material is provided on an outer side of a sealing material (903)

_ a channel formation region provided in a semiconductor film provided in the first substrate, and a gate electrode with a gate insulating film there between, which has a thickness of 500 to 2000 Å

However, these limitations are fully disclosed in Koyama device (col. 3, lines 45-50 and col. 5, lines 31-41), and although claims 17-19 and 25 of Koyama do not explicitly include all of these limitations, it is understood that these claims are inherently included more than what being recited since the claim language in Koyama states that

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"An active matrix liquid crystal display **comprising**." This language encompasses for more than what was being recited in the claims.

Further more, any features that are not recited in a claim, but disclosed in the disclosure; it is indicated that the features are not critical and essential to the invention.

Nevertheless, the set forth above features are well known and conventional for one of ordinary skill in the art to make and use such features as set forth above in the rejection as taught by Inoue/ McClelland/Sasaki.

Therefore, claims 2, 4, 6, 10, 13, 14, 17, 21-25, 27, 30-32, 35-37, 40-42, 44, 51-56, 61-64 and 69-72 would have been obvious over the disclosed device and claims 17-19 and 25 of Koyama.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Julie Ngo, whose telephone number is (703) 305-3508.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0956.

Papers related to this application may be submitted to Art Unit 2871 by facsimile transmission. The Examiner direct fax number is (703) 746-4709. Please call before sending any paper.



William L. Sikes

**Supervisory Patent Examiner
Art Unit 2871**